



REPLACEMENT SHEET

1/26

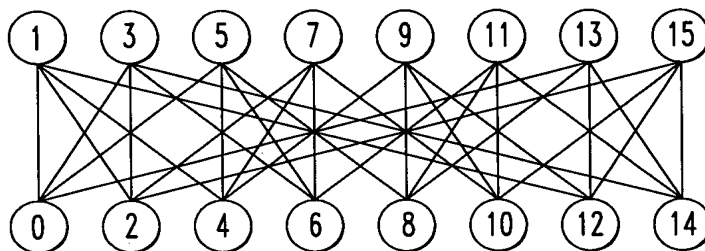
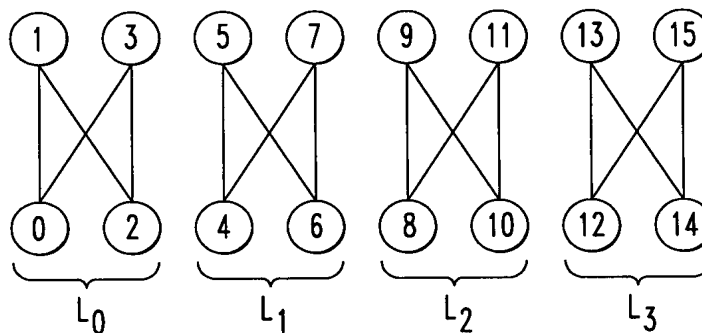
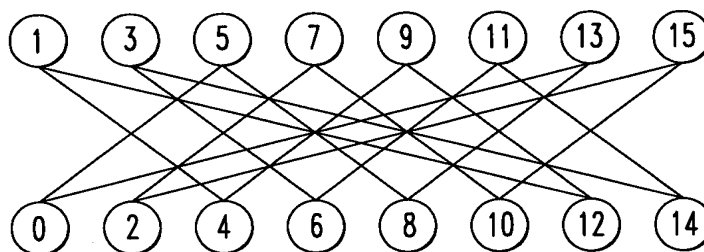


FIG. 1A



CORE RING-LINKS

FIG. 1B

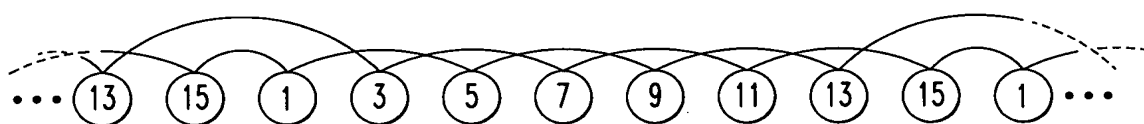


PARALLEL SPANNING LINKS

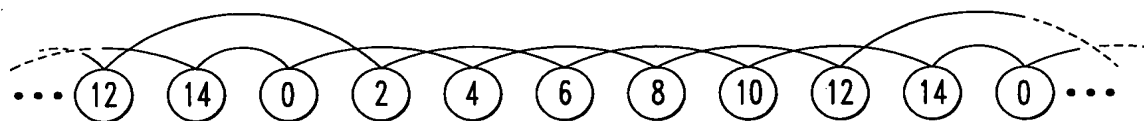
FIG. 1C

REPLACEMENT SHEET

2/26



I-RING

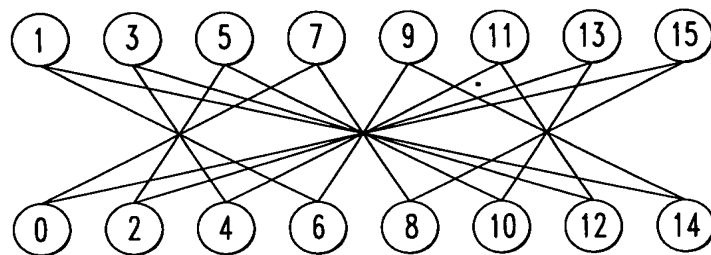


O-RING

FIG.1D

REPLACEMENT SHEET

3/26



TWISTED SPANNING LINKS

SAME CORE RING LINKS AS FIGURE 1
SAME I-RING AND O-RING LINKS AS FIGURE 1

FIG.2

REPLACEMENT SHEET

4/26

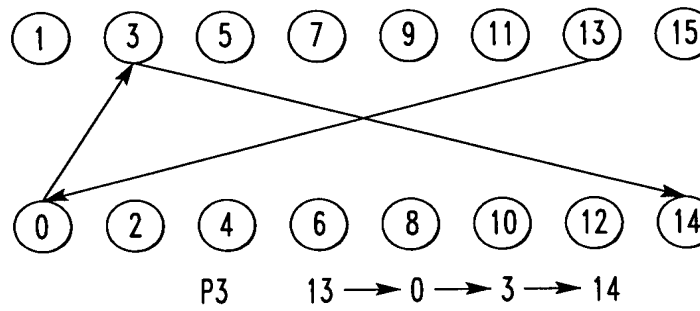
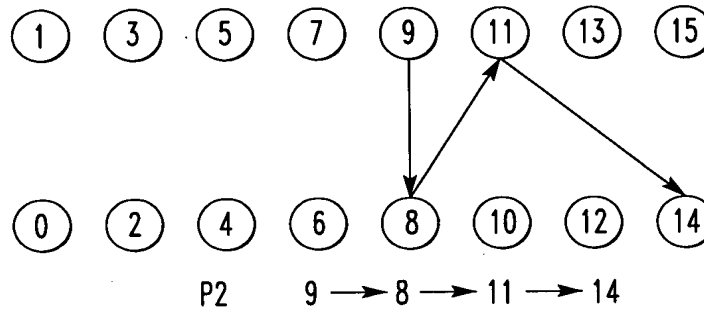
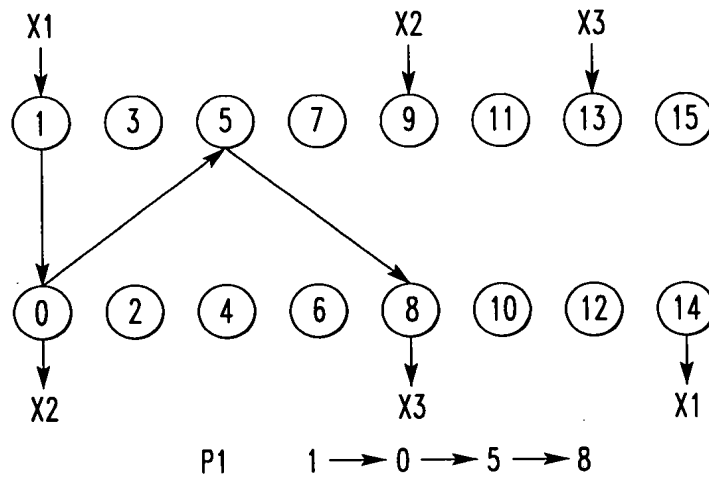


FIG.3

REPLACEMENT SHEET

5/26

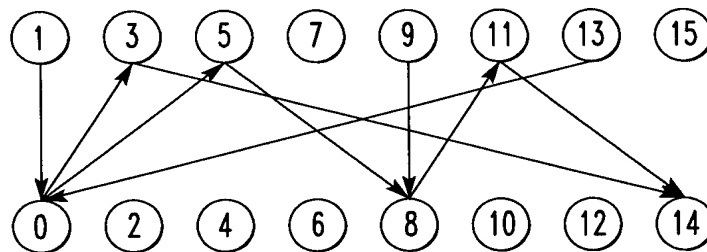


FIG. 4A

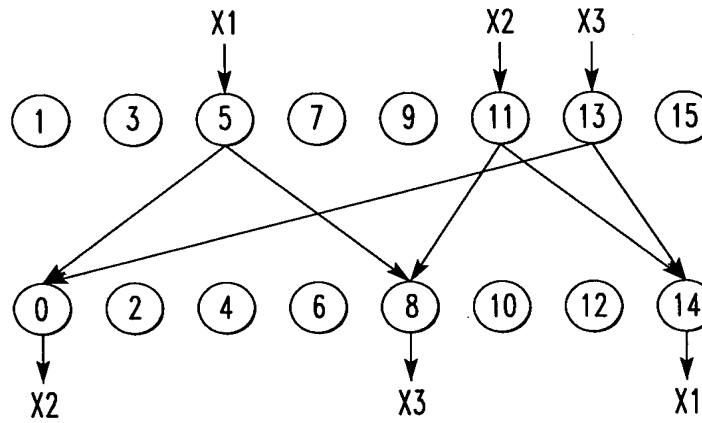
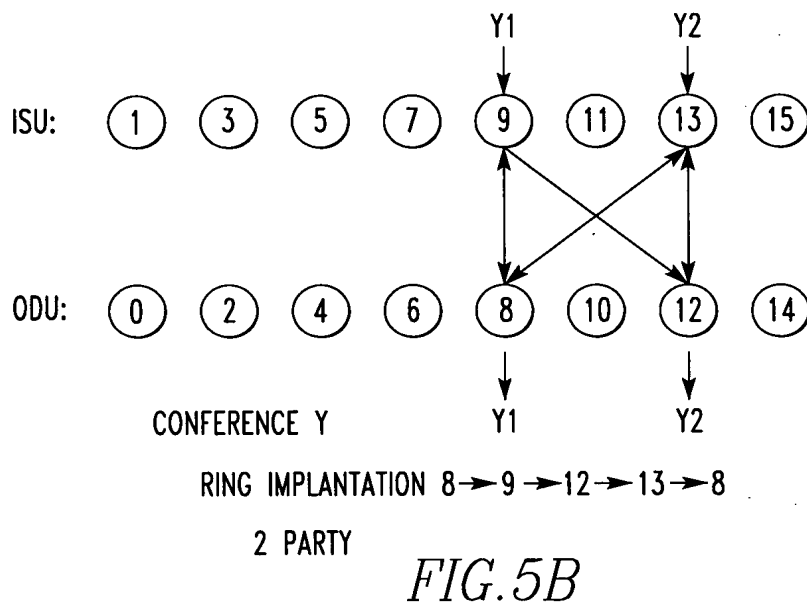
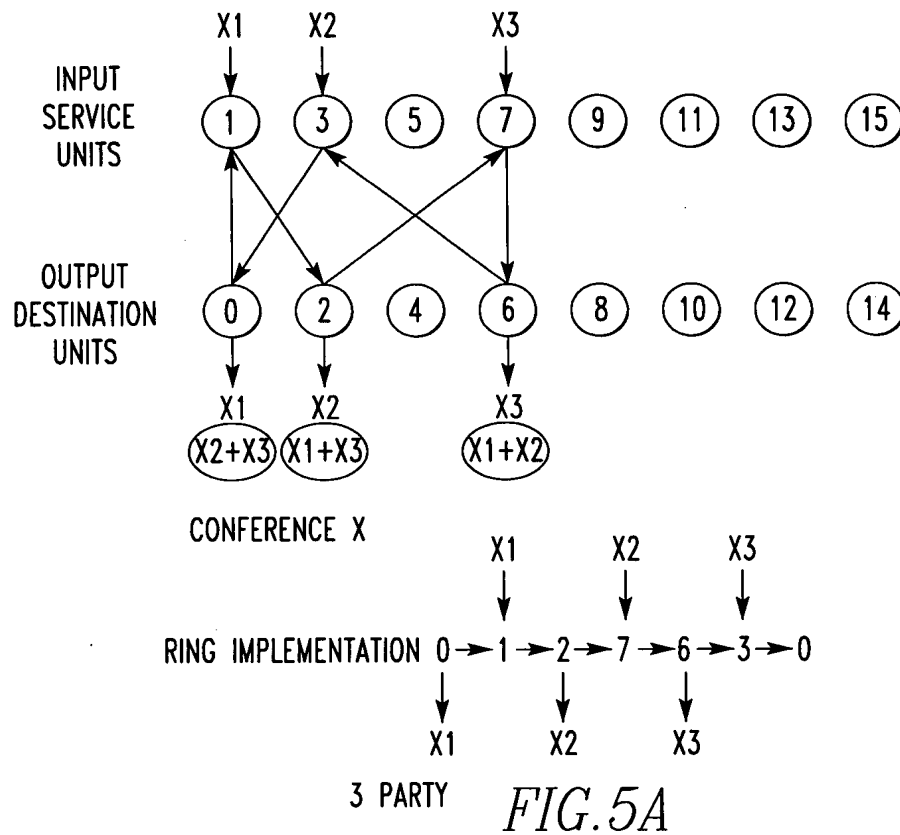


FIG. 4B

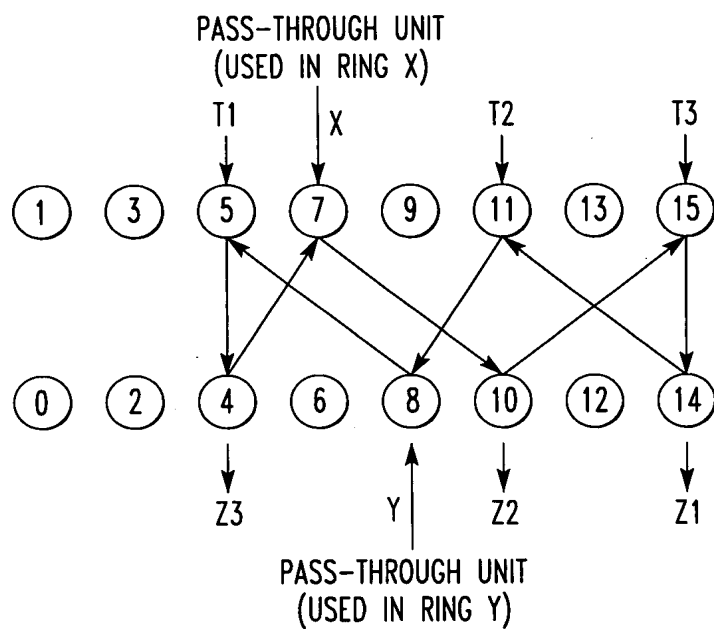
REPLACEMENT SHEET

6/26



REPLACEMENT SHEET

7/26



CONFERENCE Z

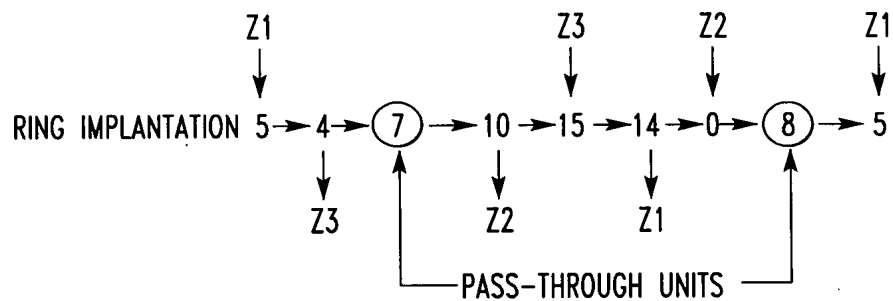
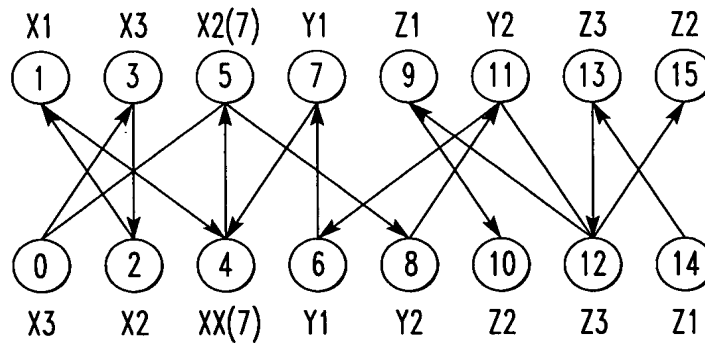


FIG. 5C

REPLACEMENT SHEET

8/26



RING X $1 \rightarrow 4 \rightarrow 5 \rightarrow 0 \rightarrow 3 \rightarrow 2 \rightarrow 1$

RING Y $\rightarrow 7 \rightarrow (4) \rightarrow (5) \rightarrow 8 \rightarrow 11 \rightarrow 6 \rightarrow 7$

RING Z $9 \rightarrow 10 \rightarrow 15 \rightarrow 14 \rightarrow 13 \rightarrow 12 \rightarrow 9$

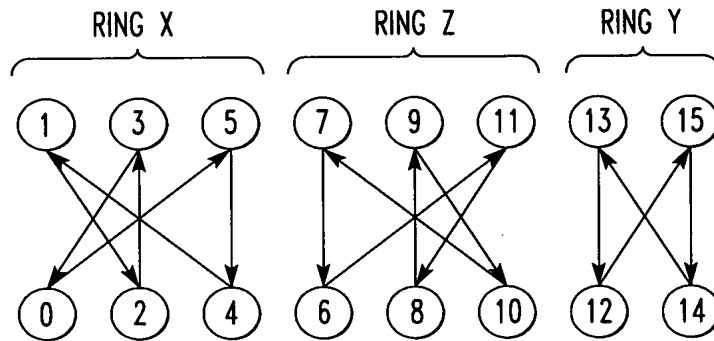
LINK $5 \rightarrow 4$ IS A PASS-THROUGH-UNIT FOR CONF Y

NODES $5 \rightarrow 4$ ARE PASS-THROUGH NODES FOR CONF Y

FIG. 6

REPLACEMENT SHEET

9/26



(3, 3, 2) CONFERENCE-DISJOINT IMPLANTATION

X: 1 → 2 → 3 → 0 → 5 → 4 → 1

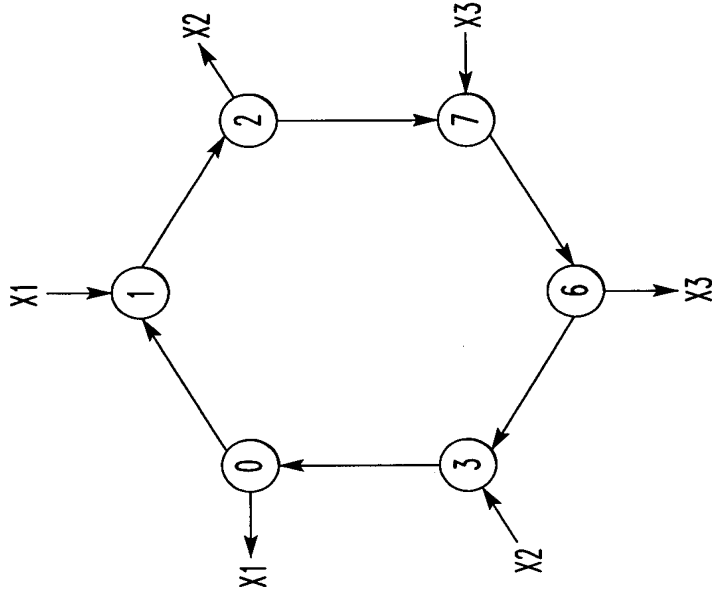
Z: 11 → 8 → 9 → 10 → 7 → 6 → 11

Y: 13 → 12 → 15 → 14 → 13

FIG. 7

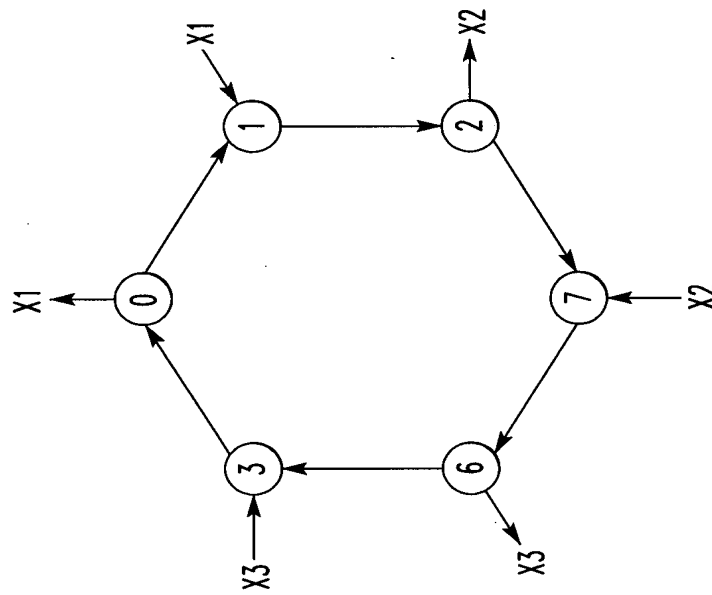
REPLACEMENT SHEET

10/26



$$\text{ALHD} = \frac{(1 + 5) + (1 + 5) + (1 + 5)}{6} = 18/6 = 3$$

FIG.8(B)

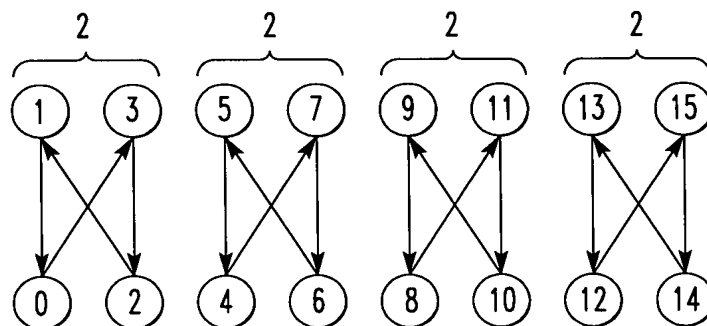


$$\text{ALHD} = \frac{(1 + 3) + (1 + 3) + (1 + 3)}{6} = 2$$

FIG.8(A)

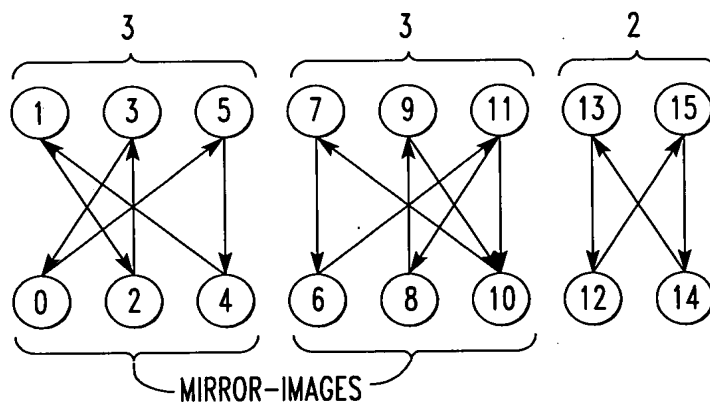
REPLACEMENT SHEET

11/26



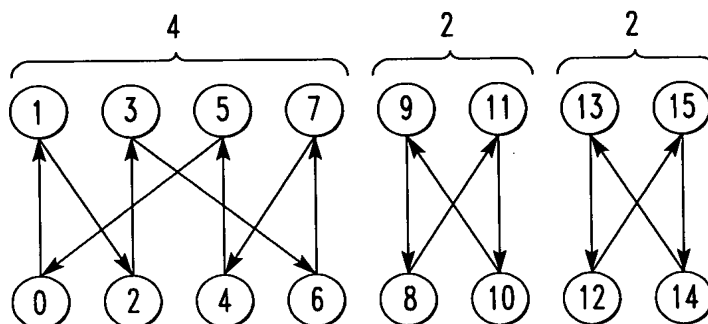
(2, 2, 2, 2) - DISJOINT

FIG. 9A



(3, 3, 2,) - DISJOINT

FIG. 9B

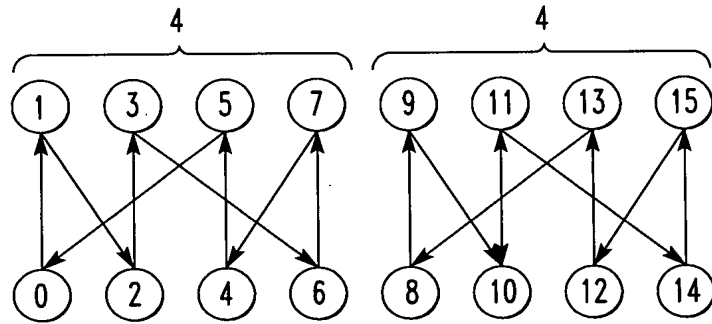


(4, 2, 2) - DISJOINT

FIG. 9C

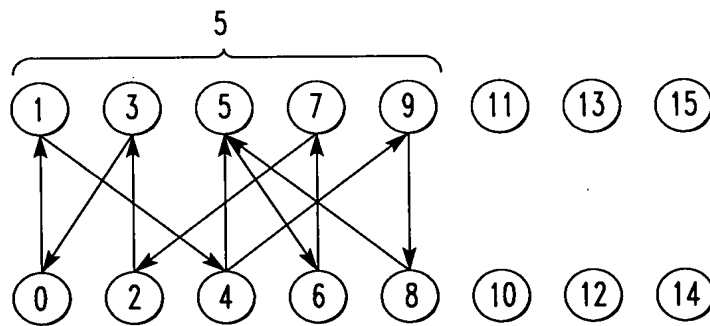
REPLACEMENT SHEET

12/26



(4, 4) - DISJOINT

FIG. 9D

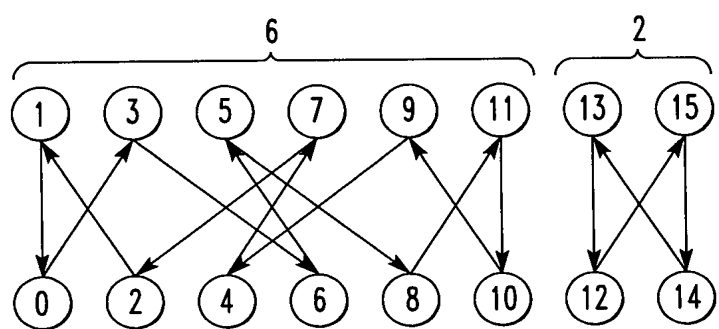


ALTERNATIVE FOR THE 10-NODE RING FOR THE
5-PARTY CONFERENCE IMPLANTATION
IN FIG. 9(F) FOR THE (5, 3)-DISJOINT
IMPLANTATION EXAMPLE

FIG. 9E

REPLACEMENT SHEET

13/26



(6, 2) - DISJOINT

FIG. 9F

REPLACEMENT SHEET

14/26

		0		1		2		3		4		5		6		7	
		1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31
0	0	X	X		0				0								0
	2	X	X	0				0								0	
1	4		0	X	X		0								0		
	6	0		X	X	0								0			
2	8				0	X	X		0				0				
	10			0		X	X	0				0					
3	12		0				0	X	X		0						
	14	0				0		X	X	0							
4	16								0	X	X		0				0
	18							0		X	X	0				0	
5	20						0				0	X	X		0		
	22					0				0		X	X	0			
6	24				0								0	X	X		0
	26			0								0		X	X	0	
7	28		0								0				0	X	X
	30	0								0				0		X	X

THE "X" INDICATES CORE RING LINKS

THE "0" INDICATES SPANNING RING LINKS

32 NODE (X RING WITH ONLY TWISTED SPANNING LINKS)

NOTE THAT 0-RING (EVEN NODE-TO-EVEN NODE) LINKS ARE NOT SHOWN

NOTE THAT 1-RING (ODD NODE-TO-ODD WITH) LINKS ARE NOT SHOWN

FIG.10

REPLACEMENT SHEET

15/26

	1	3	5	7	9	11	13	15
0		1, 3, (X, Φ)	-1, 3, (X, Φ)					
2	1, 3, (X, Φ)	-1, 3, (X, Φ)						
4	-1, 3, (X, Φ)		1, 5, (X, Y)	-1, 2, (Y, Φ)				
6				1, 2, (Y, Φ)		-1, 2, (Y, Φ)		
8			1, 2, (Y, Φ)			1, 2, (Y, Φ)		
10					-1, 3, (Z, Φ)			-1, 3, (Z, Φ)
12					(1, 3, (Z, Φ))		-1, 3, (Z, Φ)	
14							1, 3, (Z, Φ)	-1, 3, (Z, Φ)

$e(i, j) = (D_{i,j}, \text{LOAD}_{i,j}, \text{conf-ASSIGN}(i, j) = (\text{PRIMARY})_i, j), \text{PASS-THRU}(i, j))$

FIG.11

REPLACEMENT SHEET

16/26

	1	3	5	7	9	11	13	15
0		-1, X	1, X					
2	-1, X	1, X						
4	1, X		-1, X					
6				-1, Y		1, Y		
8					1, Y	-1, Y		
10				1, Y	-1, Y			
12							-1, Z	1, Z
14							1, Z	-1, Z

FIG.12

REPLACEMENT SHEET

17/26

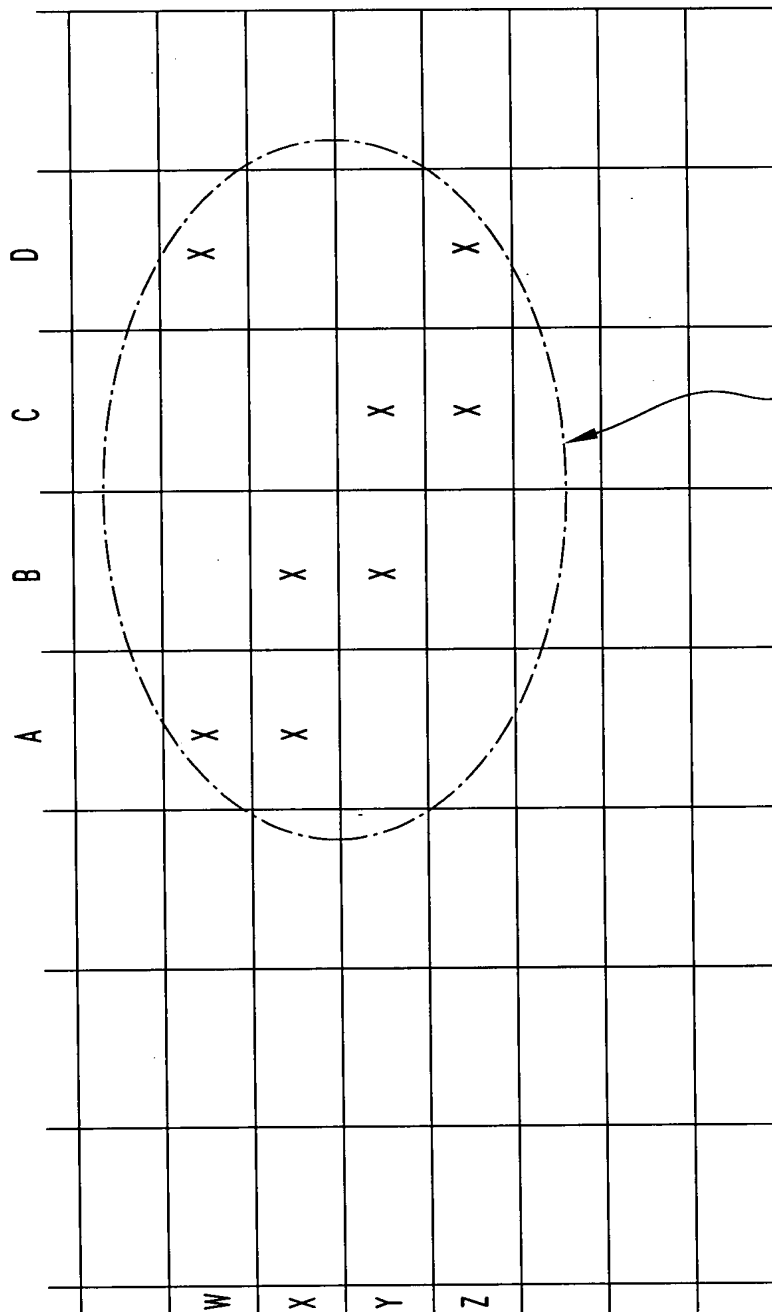
0	2	4	6	8	10	12	14
$\Phi, X3, \Phi$	$\Phi, X2, \Phi$	$\Phi, X1, Y$	$\Phi, Y1, \Phi$	$\Phi, Y2, \Phi$	$\Phi, Z2, \Phi$	$\Phi, Z3, \Phi$	$\Phi, Z1, \Phi$
1	3	5	7	9	11	13	15
$\Phi, X1, \Phi$	$\Phi, X3, \Phi$	$\Phi, X2, Y$	$\Phi, Y1, \Phi$	$\Phi, Z1, \Phi$	$\Phi, Y2, \Phi$	$\Phi, Z2, \Phi$	$\Phi, Z3, \Phi$

NODE-ASSIGNMENT(i) = (in(i), OUT(i), PASS-THRU(i))

FIG.13

REPLACEMENT SHEET

18/26

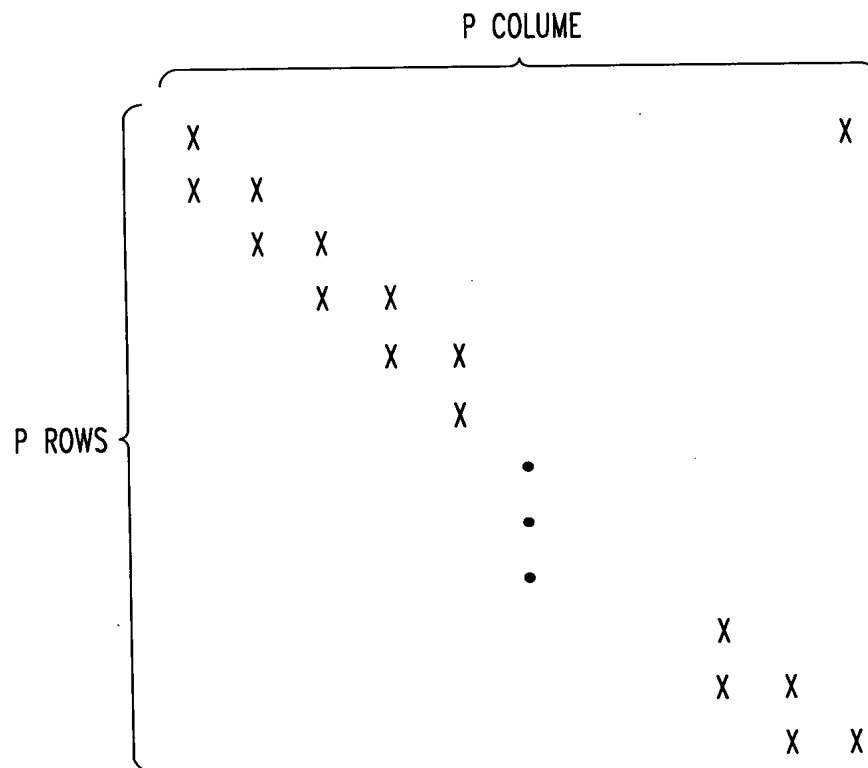


GENERIC 8 NODE RING STRUCTURE
IN A LINK INDICATOR NATURE

FIG.14A

REPLACEMENT SHEET

19/26



GENERIC 2P NODE RING STRUCTURE IN A LINK INDICATOR MATRIX

FIG.14B

REPLACEMENT SHEET

20/26

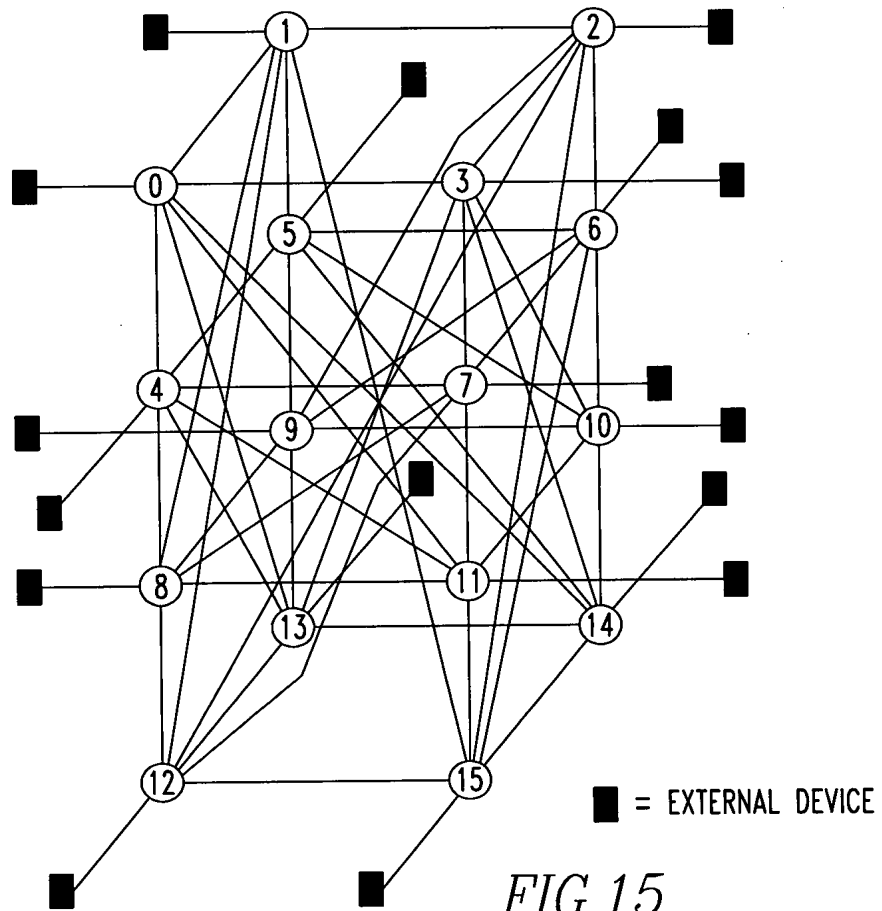
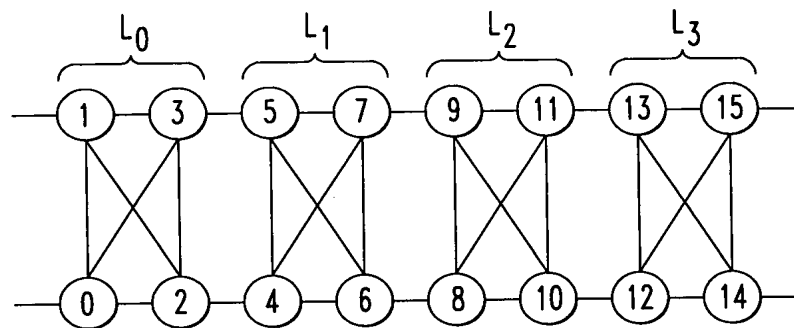
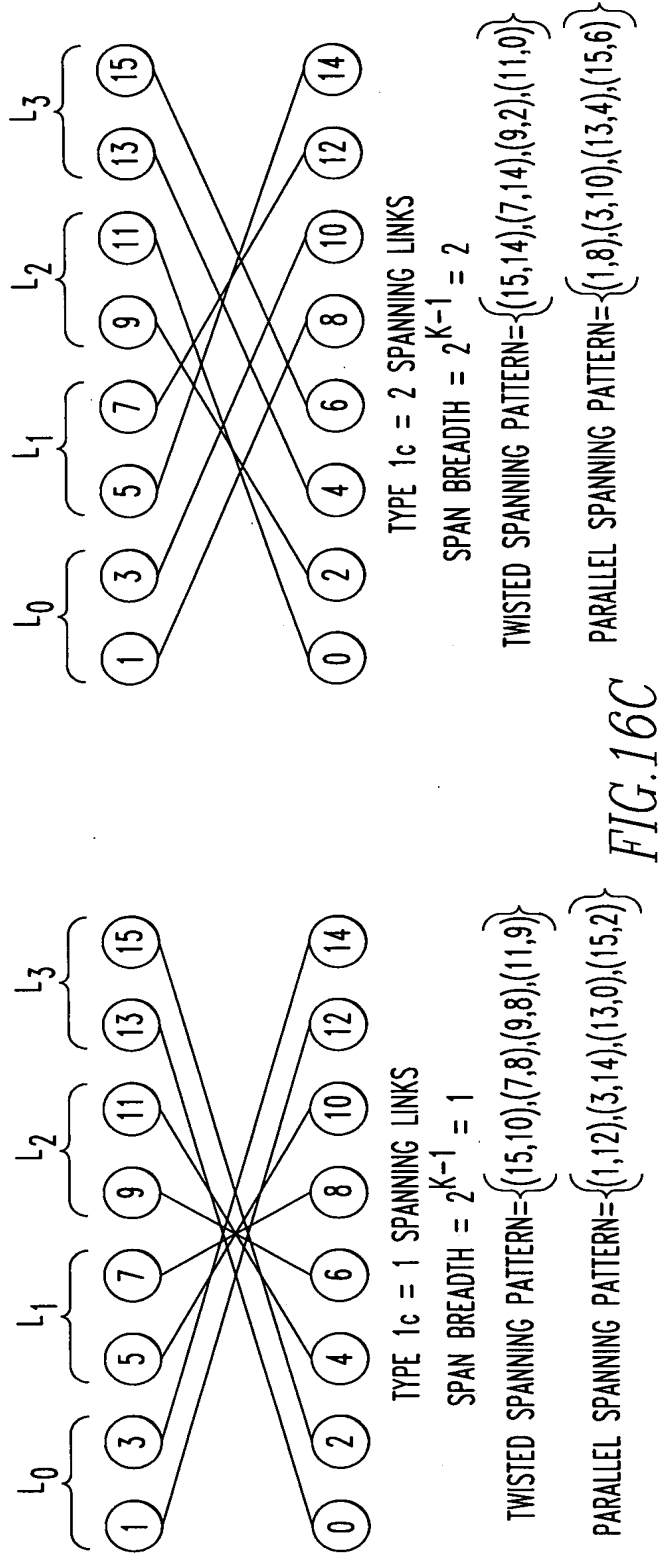
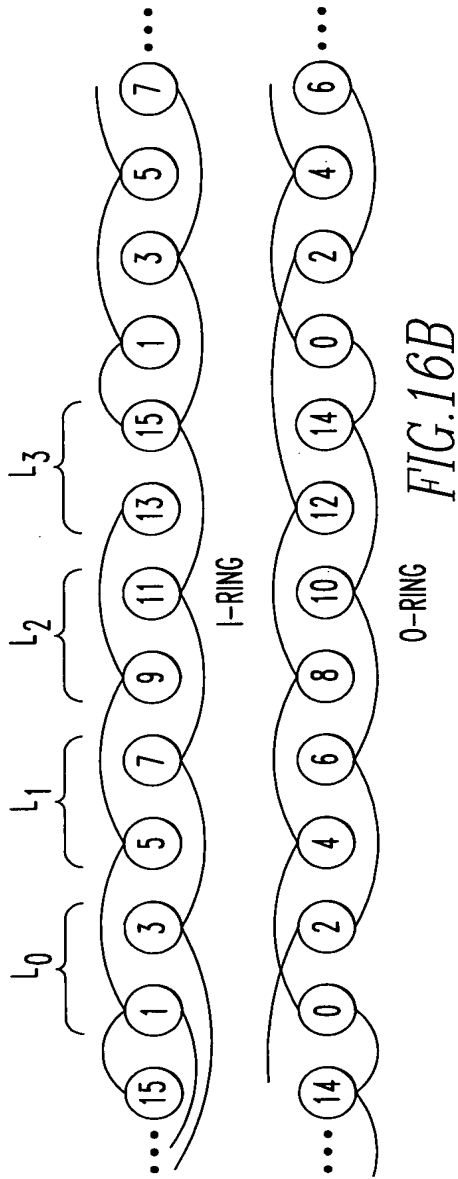


FIG.15



CORE RINGS

FIG.16A



REPLACEMENT SHEET

22/26

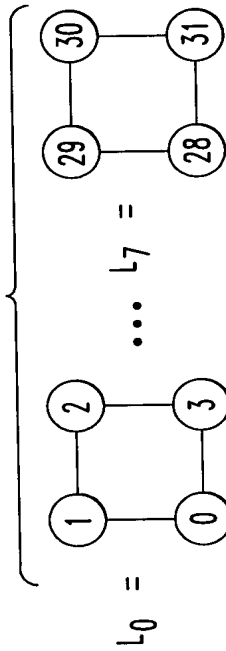
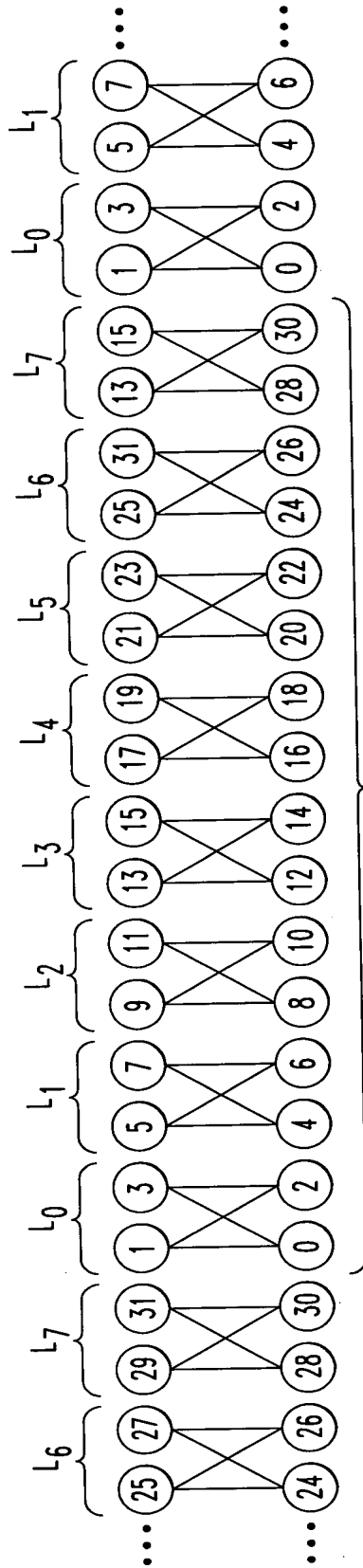


FIG.17

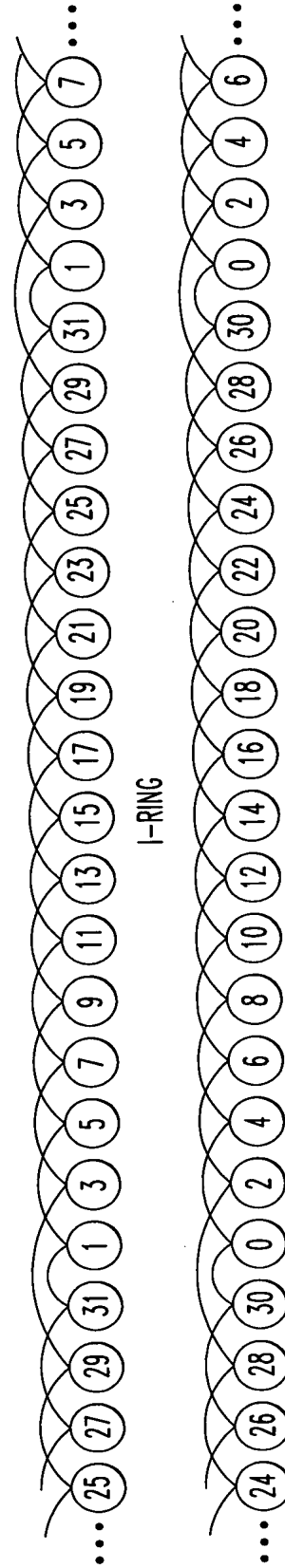


FIG.18

REPLACEMENT SHEET

23/26

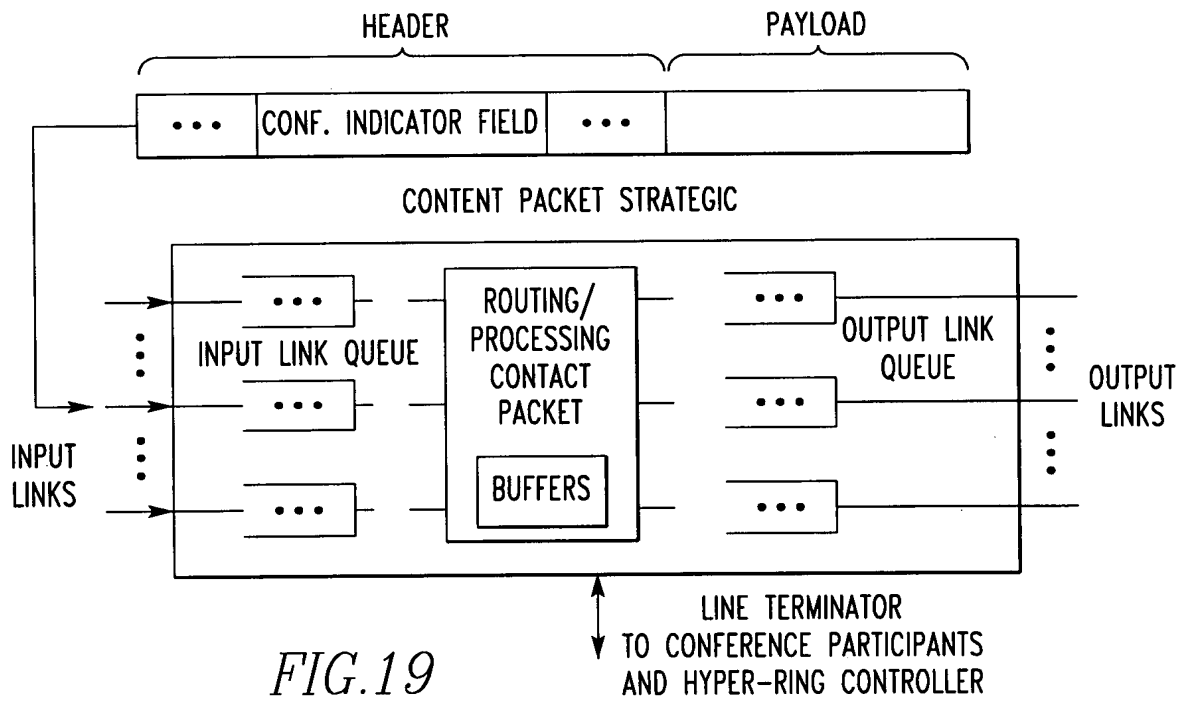


FIG. 19

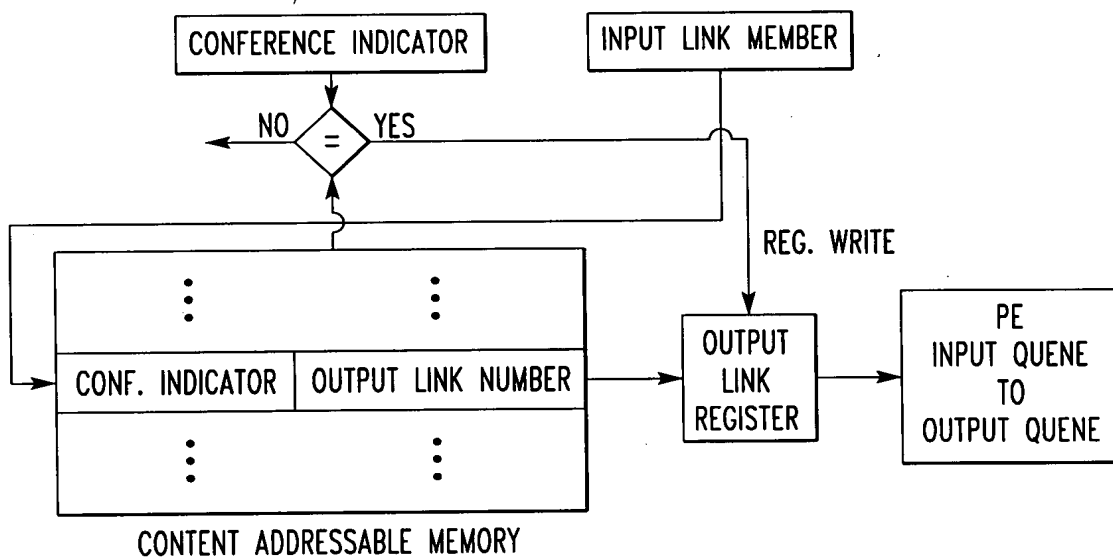


FIG. 20

REPLACEMENT SHEET

24/26

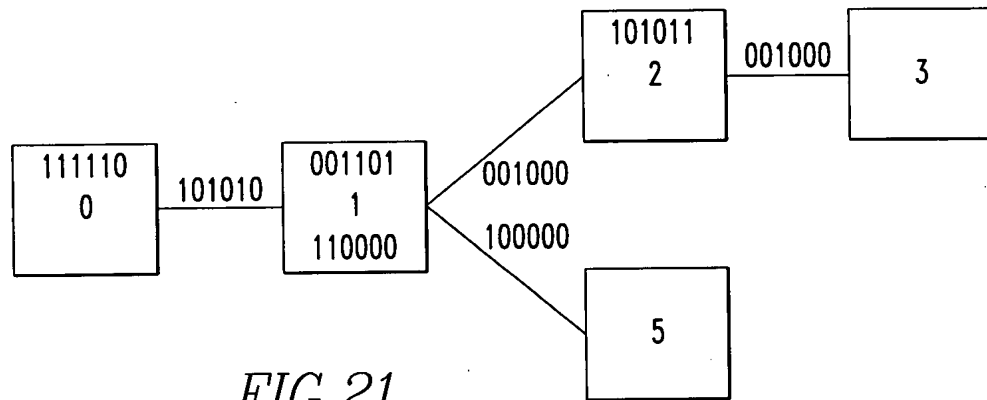


FIG.21

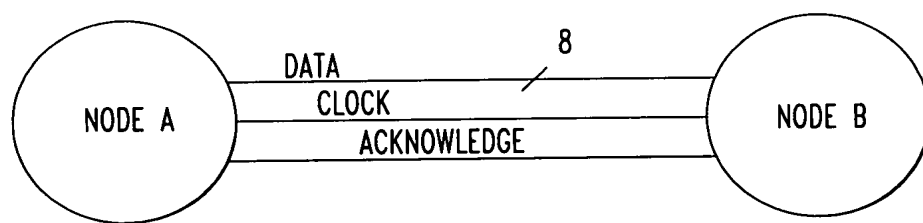


FIG.23

REPLACEMENT SHEET

25/26

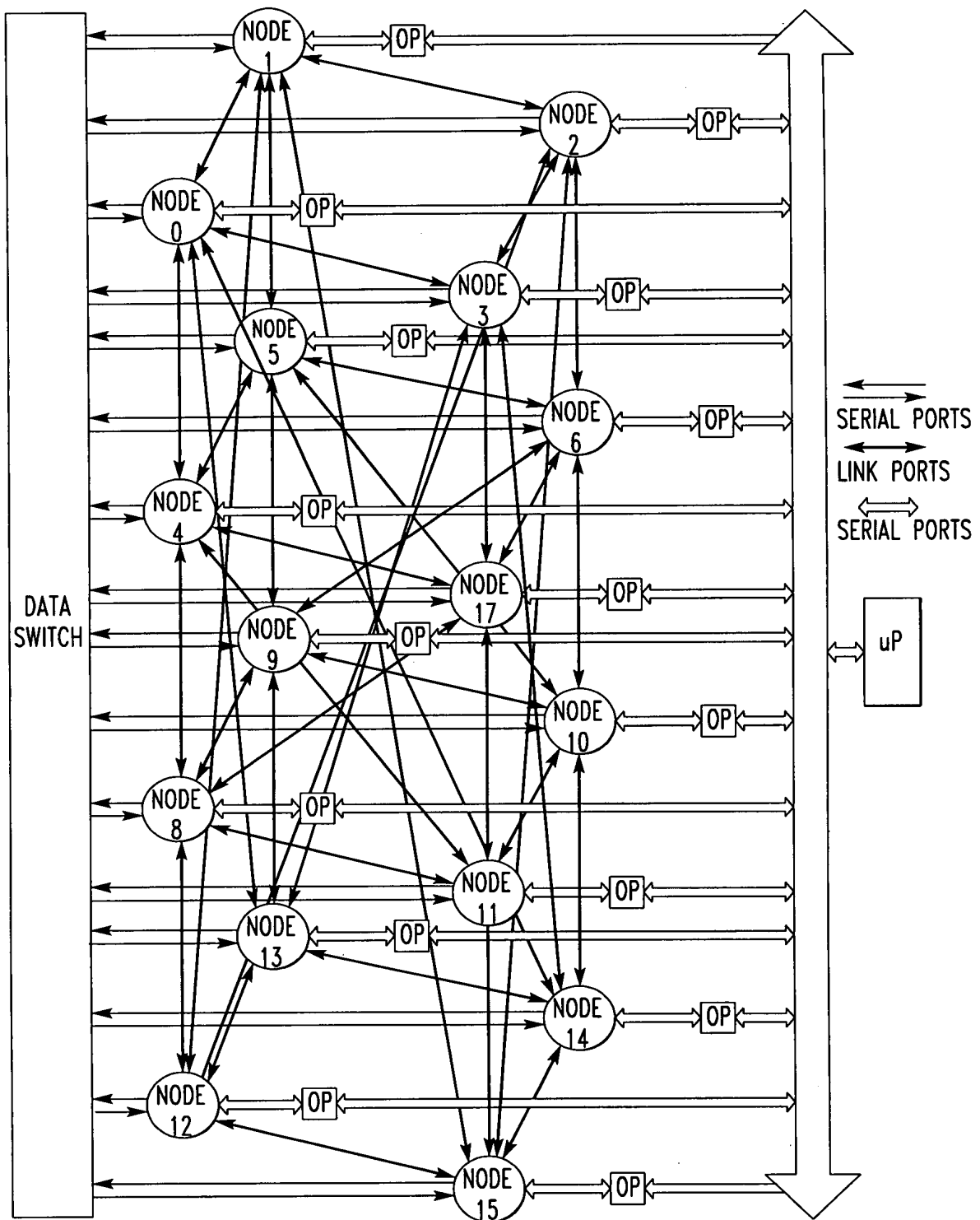


FIG.22

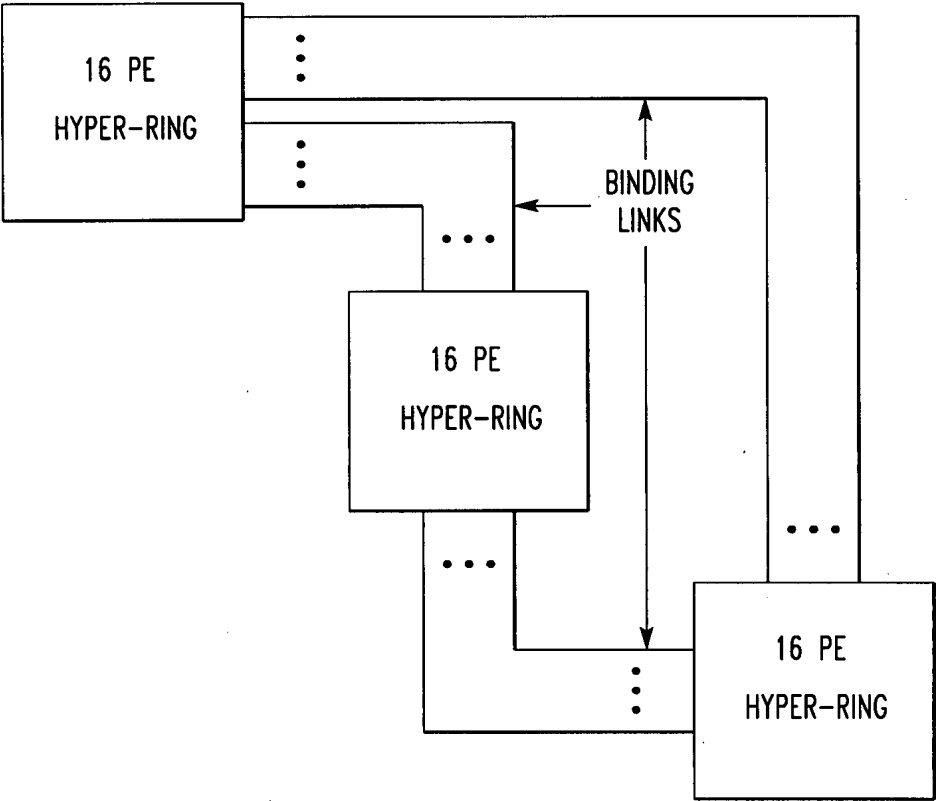


FIG.24